Household Travel Survey: Lessons Learned

A webinar addressing household travel surveys was held on June 12, 2008. The webinar presentation provided an overview of the household travel survey process based on panelist's recent experiences in designing, implementing and managing one or more travel surveys. Initial discussion focused on the rationale for conducting a survey and fundamental survey design considerations such as survey methods, required sample size, timeframe and budget. Concluding remarks summarized relevant lessons learned arising from the conduct of recent travel surveys.

The webinar was moderated by Ed Christopher, Federal Highway Administration (FHWA) with the following six panelists presenting:

- Chris Hiebert, Southeastern Wisconsin Regional Planning Commission
- Kermit Wies, Chicago Metropolitan Agency for Planning
- Clara Reschovsky, Metropolitan Washington Council of Governments
- Karen Faussett, Michigan Department of Transportation
- Jack Lorbeer, Washoe County Regional Transportation Commission
- Neil Kilgren, Puget Sound Regional Council

Purpose for Conducting Survey

While some areas attempt to conduct travel surveys on a regular cycle, such as every ten years, it appears that having a defensible model based on current survey data was often a decisive factor in the decision to conduct a travel survey. As several panelists noted, the impetus for conducting a survey evolved based on travel model credibility issues. Topics of concern related to the model's integrity that prompted the conduct of a survey included the following:

- Models were based on outdated survey data
- Models were based on borrowed data or transferred parameters
- Changing socio-economic conditions such as rapid urban growth

Future potential budgetary constraints and the schedule for updating the regional long-range plan were also cited as factors in the decision to conduct a survey.

Several reasons were cited for the purpose for conducting a survey including the following:

- Update existing regional travel model; specifically:
  - Update model with more current data
  - Update model with data specific to the region
- Develop a more complete assessment of current travel behavior
- Support development of advanced models
- Establish a foundation for building better "choice" models

Timeframe

The timeframe for completing a household travel survey encompassed a number of activities including the following:

- Pre-survey activities such as:
  - Development of new model specifications
  - Identification of required data to support model development
  - Survey design
  - Sample size estimation
  - Development of request for proposal (RFP)
- Survey implementation activities including the following:
  - Pilot survey

    - Household recruitment
    - Mailing survey forms
    - Data retrieval
- Post survey activities such as:
    - Data analysis
    - Survey documentation

The time expended for completing these activities varied from approximately one and a half years to three years.

Sample Size, Survey Costs and Budget Estimation

Between the six panelists, survey sample size ranged considerably, from 1,200 households to 16,500 households. Two surveys sampled 1,200 and 4,700 households respectively, while the other four sample sizes were 10,000; 10,600; 14,000 and 16,000 households. Though sample size is typically a function of adequate statistical requirements and/or budget constraints no further discussion addressed the variation in stated sample sizes.

The associated costs cited for conducting these six surveys varied from $700,000 to $2.3 million though the variation in costs can be attributed to differences in sample size, the extent of activities undertaken from those listed above and the conduct of other surveys, in addition to the household survey, such as on-board transit, commercial vehicle and external roadside surveys. The actual survey cost per household ranged from $100 to $200, with most panelists estimating an approximate cost of $150 per household.

The basis for determining an initial survey budget varied as well; a number of approaches were mentioned as a means of determining an initial budget. These included:

- Internal and external staff joint committee developed scope of work and programmed sufficient budget to both conduct the survey and analyze survey data as a means of estimating budget requirements
- Inventoried other urban area survey budgets for guidance and subsequently specified desired budget amount which was able to be acquired through the use of state planning and research funds
- Budget estimate was based on previous lessons learned
- Worked with state department of transportation (DOT) to set aside budget
- Budget was derived by setting aside funds over a number of years

Lessons Learned

A number of invaluable lessons learned were offered by the six panelists based on their recent survey experience. These lessons encompass the gamut of survey activities, from pre-survey efforts to post survey data analysis:

- *Pre-survey activities* – schedule ample or additional time for pre-survey activities to allow adequate time for planning and survey design. Likewise, set aside enough time to assess pilot survey results prior to finalizing survey instrument.
- *Survey Implementation* – the use of computer assisted telephone interview (CATI) techniques underscored the importance of having knowledgeable interviewers familiar with the urban area
- *Data Geo-coding* – Geo-coding problems pointed to the need for superior quality maps and address databases as a means of surmounting inaccurate travel diary address responses
- *GPS Technology* - the use of global positioning satellite (GPS) technology was considered to be worth the additional survey cost. The additional data derived from the

implementation of GPS was cited as beneficial in revealing and addressing under-reporting of stops and trips. In addition, GPS data was also cited as a beneficial means for prompting survey respondents to more fully complete their travel diary.

- *Survey Process* – In general it was noted that the actual amount of detailed data arising from the survey process was of itself an educational process; that participating in a survey was ultimately a beneficial learning experience. However, a final cautionary lesson offered is that a survey requires a substantial staffing commitment; consequently, ample staff time should be allocated and budgeted for conducting the survey and post-survey activities.

Resource Materials

Several travel survey reports were offered as useful resource documents with three of those available on-line as noted below:

NCHRP Report 571: Standardized Procedures for Personal Travel Surveys
http://gulliver.trb.org/news/blurb_detail.asp?ID=9029

Travel Survey Manual, 1996, Cambridge Systematics, Inc.
ftp://ftp.camsys.com/temp/outgoing/Travel_Demand_Survey_Manual/index.htm

Survey Methods for Transport Planning, 1st Edition (1995), Richardson, Ampt, Meyburg
http://www.transportsurveymethods.com.au

The Transportation Research Board (TRB) committee for travel survey methods was also cited as a valuable resource; its web address is as follows:

ABJ40 Travel Survey Methods Committee
http://www.travelsurveymethods.org

Finally, the TMIP email listserv is an advantageous resource for drawing on professional peer's wealth of experience and knowledge as well as a means of continuing this discussion further.